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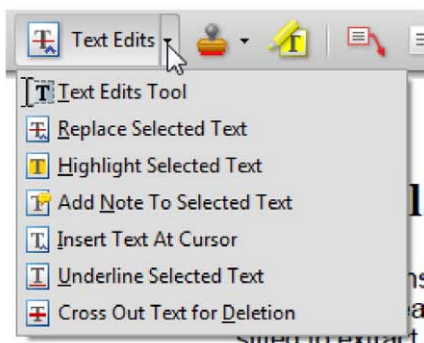
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# Climate change and society

## Keynote address at Conference on Environmental Education, Birzeit University, Ramallah, Palestine, 16 November 2011

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The paper reviews the problems impeding adaptation to the effects of climate change, but discerns  
hopeful trends.

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*Keywords:* Climate change; Anthropocene; Giddens's Paradox; Resilience

Mister Chairman, colleagues, many thanks for inviting me to this conference. As-Salamu  
Alaykum. I am deeply honoured. It is also a great honour to deliver a keynote address to  
this conference. I would like to offer my congratulations to the government of Palestine in  
becoming a member of UNESCO. We all have a duty to conserve our heritage for future  
generations and this ancient land deserves protection. But from my experience in public  
life, some 20 years now, rights and duties come with responsibilities.

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Recent events, the global credit crisis, the Arab Spring or Awakening, have thrown into  
stark relief the world that we have produced. As historians often point out, there are events  
in our history that show the best of the human spirit: our compassion for our fellow  
human beings, our yearning for justice and freedom. We can point to those events – the  
abolition of slavery, the end of colonialism, the growth of freedom and democracy – and  
say they marked a shift for the better in our development. But as soon as one injustice is  
righted, another is enacted.

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And so it has been throughout our development. In ancient times people often blamed  
vengeful or wicked gods or evil spirits for their woes. Today we know more than ever that  
evil and injustice, as well as compassion and justice, are products of human agency. It is  
we who perpetrate these events. Historians have often given names to historical periods;  
for example the Roman and Ottoman Empires. Today many call this period the Anthro-  
pocene [1], an era where human agency is responsible both for the good and the bad we see  
around us.

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What does this mean? Simply it means that we are wholly responsible for the events  
that unfold. This is the case for climate change. The evidence that human actions are  
responsible for exacerbating natural climate variability and accelerating long-term warming

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is accepted, despite the efforts of the climate sceptics, pre- and post-Copenhagen. A recent study by the Berkeley Earth Group, partly funded by climate sceptics, agrees with climate change modellers that there is a discernable increase in temperature caused by human actions [2]. But it is the inaction of political leaders in failing to agree on a method for dealing with the climate crisis that is the real concern. At Copenhagen they agreed a limp statement pledging to keep global average temperature rise below 2 degrees Celsius without any mechanisms for realising that aim.

They have not behaved responsibly with reference to climate change and their right to govern on our behalf comes with the responsibility to do so. Yes, there are flaws in the Climate Convention, but in reality these are used as excuses for the lack of political action to tackle this problem. Some warn of a future perfect storm of runaway climate change, huge water, food and energy shortages and enormous population growth. Others, such as Mr Birol, chief economist of the International Energy Agency, believe that climate change will be irreversible in about five years [3]. Why is it so difficult to get a global agreement? There are three broad reasons.

Firstly, politics and economics. Getting all 194 nations to agree, let alone getting them to start adapting the global energy system to low carbon sources, is fiendishly difficult. Without an international deal that sets targets for all, no one nation can be certain that others will pull their weight. At present the rich nations are transfixed by the economic crisis and there appears to be little appetite to really tackle the climate crisis. This is despite warnings from Lord Stern and others that it is more cost effective to deal with the problem now as opposed to dealing with the consequences later [4]. Governments are fearful of being first. They are caught in what is known as the Giddens's paradox; that is, governments won't act until something actually goes wrong. By then it may be too late [5]!

Secondly, distorted markets. Renewable energy is all but unlimited. But their transformation into usable energy supplies appears too costly – more costly than fossil fuel polluting alternatives. But this hides the fact that fossil fuel industry received \$409bn in handouts in 2010, compared with \$66bn for renewable technologies. In addition the external costs of fossil fuel use are not reflected in price mechanisms. Are governments sufficiently strong to face up to the fossil fuel lobby? The market is distorted. We see this in Cap and Trade, the mechanism argued by many as a powerful tool to address climate change. Cap and Trade has been brought to us by the same financial corporations that were responsible for sub-prime mortgages. Should such corporations be trusted? Governments appear to believe so. If we are really serious about the Millennium Development Goals then renewables, especially solar power, are the best and cheapest way to bring electricity to the 1.3 billion people who are without power.

Thirdly, technological lock-in. We are still trapped in thinking about energy systems where high density fuels are transformed into energy services, often at a gigantic scale. Carbon Capture and Storage (CCS) is hailed as the new future for coal. But, it is only experimental at present and there are huge uncertainties, both technical and legal, about storage. Shale gas appears to be the next plentiful source and is predicted to provide one fifth of global energy supplies by 2035. But this will also require CCS. Nuclear power is back on the agenda, but there is no viable method for dealing with the waste. We will be locked into these technologies for many years. We still hope that we can find the ultimate solution – the big one – fusion power. Much is being invested in research. In Europe the International Thermonuclear Experimental Reactor (ITER) is likely to cost some 16bn Euros but there is still uncertainty about our ability to make this work. If fusion power is possible then it is unlikely that commercial plants will be available before

2050. Even at a smaller scale, the motor car for example, we still try to make electric vehicles have the same range as fossil fuel powered vehicles despite research showing that on average we drive less than 100 miles per day. We are unable to think differently. This is worrying as renewable sources imply a new approach to energy system architecture, an architecture that is based on typically low density intermittent sources such as wind or solar power.

But our immediate problem is how do we adapt to changes that will happen because of the greenhouse gases already loaded into the atmosphere? This is an immense challenge. Adaptation has moved from being the poor relative to mitigation in the Climate Convention to a challenge for all countries. Reducing greenhouse gas emission is a huge challenge. Adaptation, in my view, is even greater. Adaptation strategies will be unique to location and their socio-economic and political structure. There will be lessons learned between areas facing similar problems but that will require a greater dialogue between South and North and East and West – perhaps a little less hectoring from the North is needed! We should not undervalue the importance of Indigenous Knowledge.

The varied nature of adaptation strategies means that varied solutions will be needed. I was a researcher in the Netherlands Climate Assistance Programme, which investigated adaptation strategies in 14 developing countries [6]. Most of the problems encountered could be addressed through a number of measures such as awareness raising or introducing new practices that could be incorporated into existing livelihood systems. But others will require very difficult decisions.

One such was water security. I was fortunate to spend some time in San'aa in Yemen. It saddens me to see the problems that the country currently faces. San'aa relies on underground water supplies that are re-charged through rainfall. A combination of a drop in precipitation rates and increased demand is depleting the underground water resource. In addition there are pollution problems caused by unregulated business activities and poor waste management. Using WEAP (Water Evaluation and Planning system), a water management tool, and stakeholder interviews the study investigated the effectiveness of water efficiency and harvesting measures. The analysis indicated that without radical changes it was likely that San'aa will be without a viable water source in the near future [7]. Could that lead to the abandonment of the city?

There is a similar question for New Orleans – not driven by water shortage but by water excess – inundation! Hurricane Katrina overwhelmed the flood defences of the city. The lower city wards were destroyed. Many fled and have not returned. Questions remain about the wisdom of re-building these areas. In the longer term areas such as the Nile Delta are likely to suffer from sea level rise. Egypt is very dependent on this area and inundation by the sea will jeopardise the country. There is much we have to learn about what is likely to happen as well as dealing with the consequences. In terms of education for sustainability, adaptation is an immense challenge. I am reminded of the words of the Brazilian philosopher Paulo Friere who said:

Education either functions as an instrument which is used to facilitate integration of the younger generation into the logic of the present system and bring about conformity or it becomes the practice of freedom, the means by which men and women deal critically and creatively with reality and discover how to participate in the transformation of their world. [8]

Education, both formal and non-formal, is vital for adaptation. But it needs to be delivered in ways that challenge the existing norms if we are to avoid future disasters. There needs to be greater dialogue between the Climate and Disaster Risk Reduction communities at all levels. There are signs that thinking is beginning to change.

People have continually adapted. Simply put, we will need to harness all of our ingenuity to make adaptation purposeful. The challenge for scholars is in including people in developing solutions and giving them ownership. This has been partially recognised in the Hyogo Framework for Action (HFA) which advocates the development of resilient communities. People and communities will need to be more self-reliant, able to cope with disruptions. Building resilience is a cooperative process that requires negotiation. It cannot be imposed. New forms of governance are vital. As scholars we will have to learn to do things differently. Social and organisational learning, learning from each other and challenging existing norms will be vital in empowering people. That will build resilience.

This is an immense challenge for us all. It seems to me that many of our political leaders have failed to grasp the urgency of addressing climate change. But I am encouraged, as many know that something is wrong. I am not suggesting that we have reached a tipping point in attitudes to climate change. But there is change. In my city, there is a new generation of local politicians and they have brought a new dynamism to city politics. Despite the problems we face I feel more optimistic about the future.

This is not to suggest that global change is imminent, but there is an undercurrent that could drive change: the Arab Spring, leadership change in Italy and Greece, the emerging debate on the future of the EU, the increasing importance of the BRIC (Brazil, Russia, India and China) nations, especially China. There is a new reality emerging. Let us hope that this can bring new energy and urgency to the climate debate and let us hope that this happens quickly. In the meantime we each have a duty to keep up with our efforts to find solutions to the problems we all face.

Shukran Jazeelan.

### Note

1. The author visited Palestine in his capacity as Lord Mayor of Newcastle upon Tyne.

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